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(56) Documents Cited

GB 1135728 A US 5575472 A US 5332214 A

(58) Field of Search

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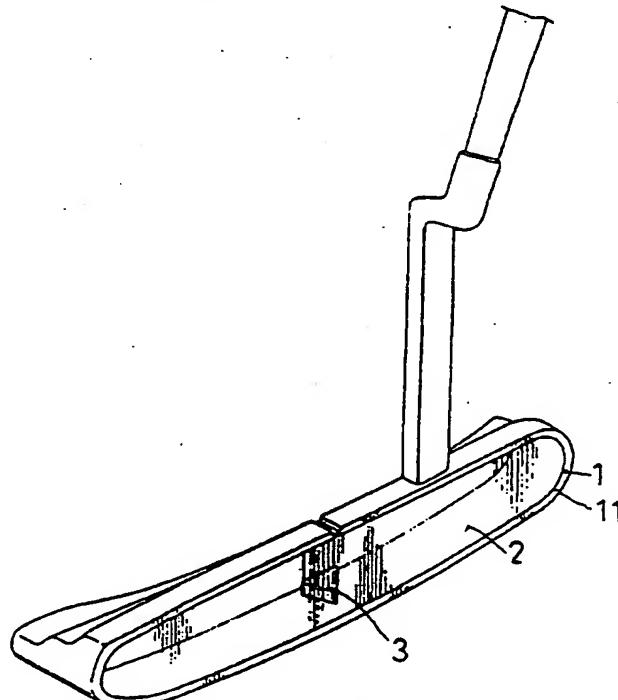
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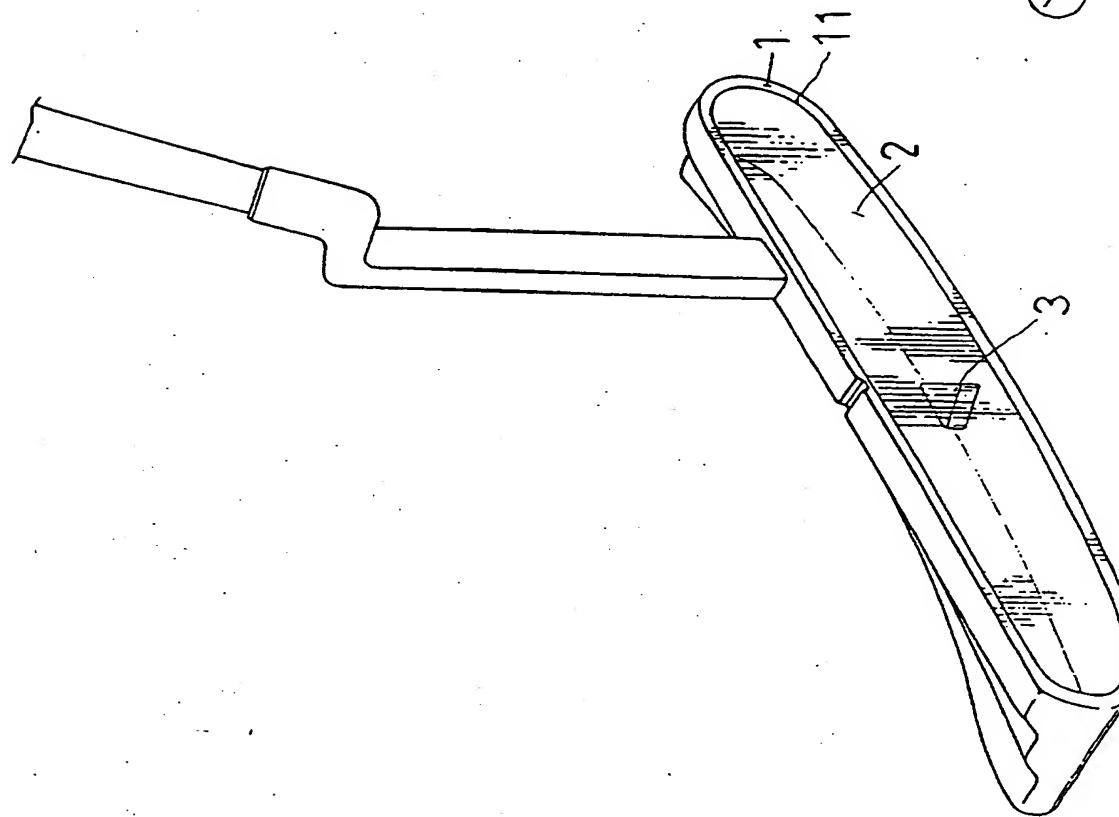
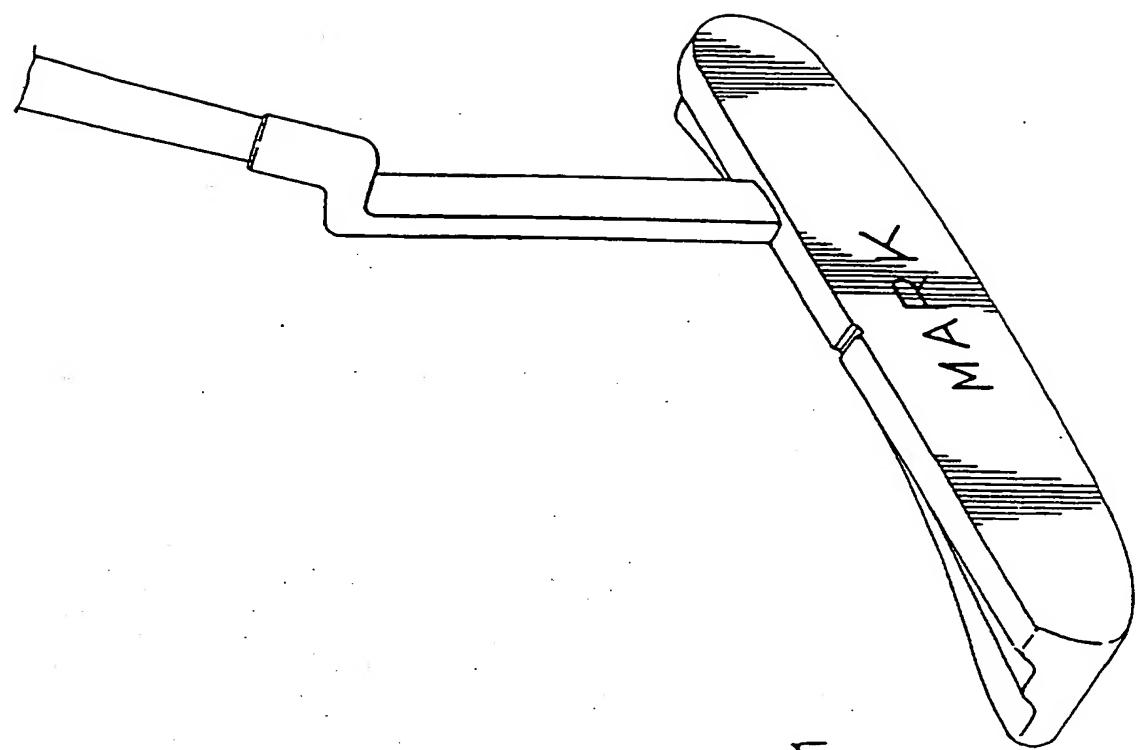
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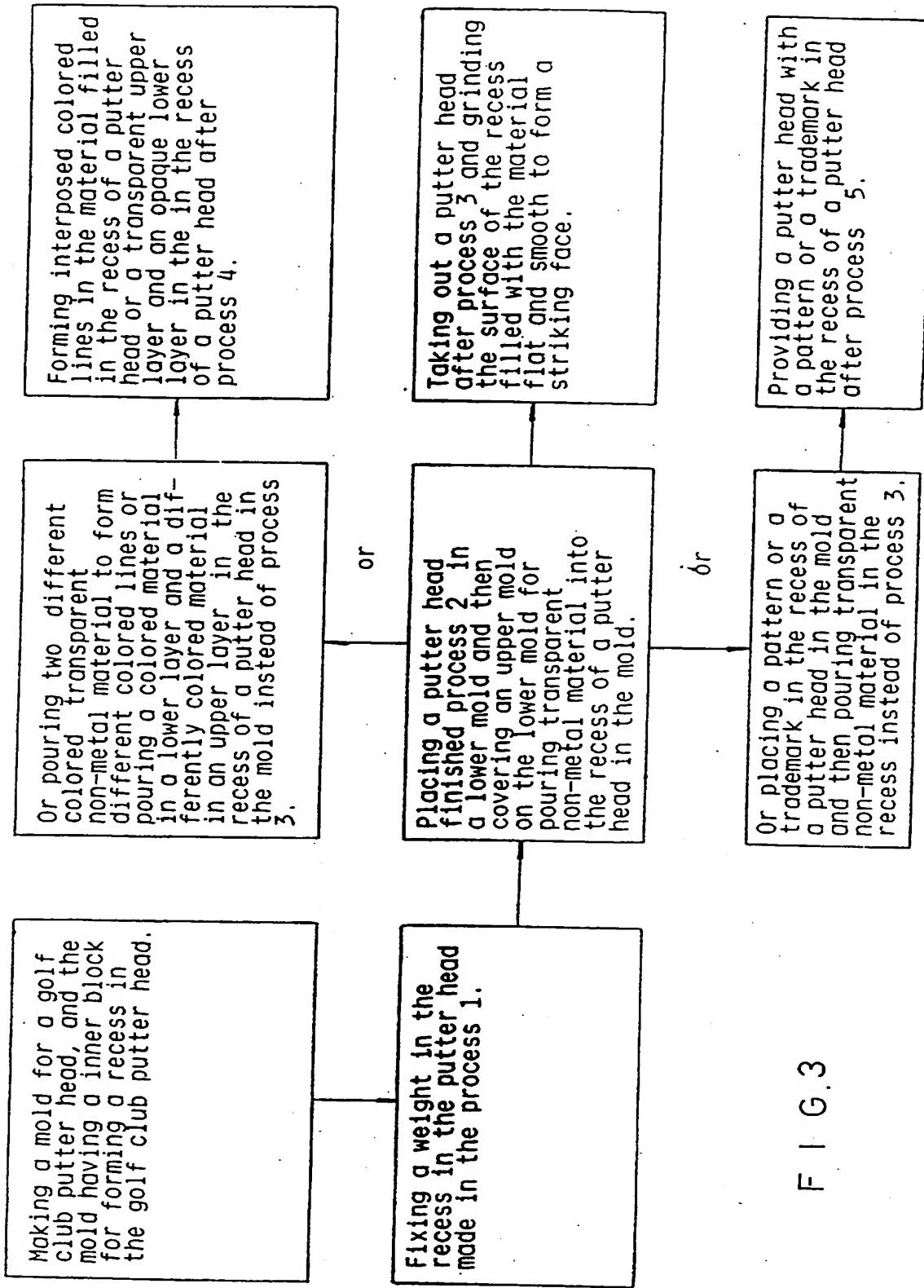
(54) Abstract Title

Manufacturing golf putter heads

(57) A method for manufacturing a golf club putter head comprises a first step (1) of making a mold for the putter head comprising an upper mold, a lower mold and an inner block for forming a recess in the putter head after making the putter head by means of pressing, molding or die casting; a second step (2) of fixing a weight in the recess of the putter head, forming a center of gravity before a golf club is assembled with the putter head; a third step (3) of putting the putter head in a lower mold placing an upper mold on the lower mold, then pouring liquid transparent non-metal material such as epoxy into the mold to fill in the recess in the putter head; and a fourth step (4) of removing the putter head with the recess filled with transparent non-metal material from the mold and grinding the surface of the non-metal material into a flat smooth striking face, finishing manufacturing the golf club putter head.







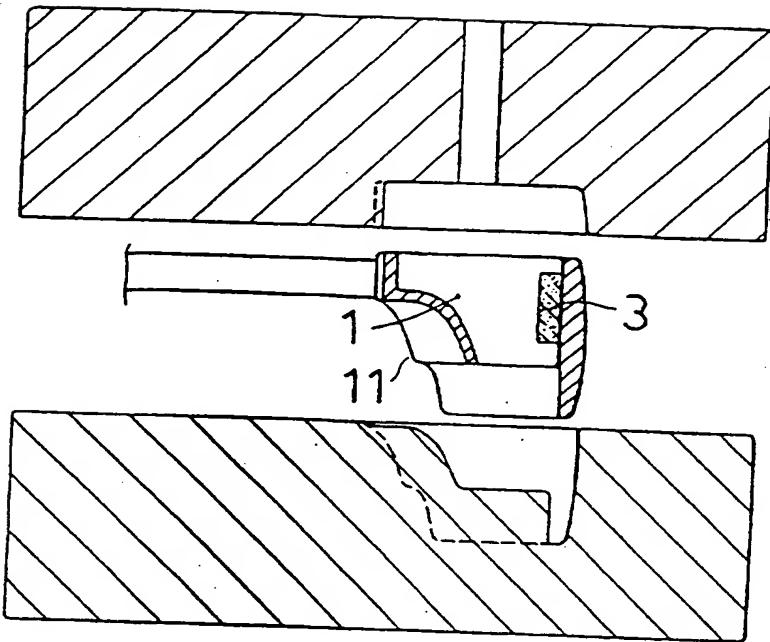


FIG. 4

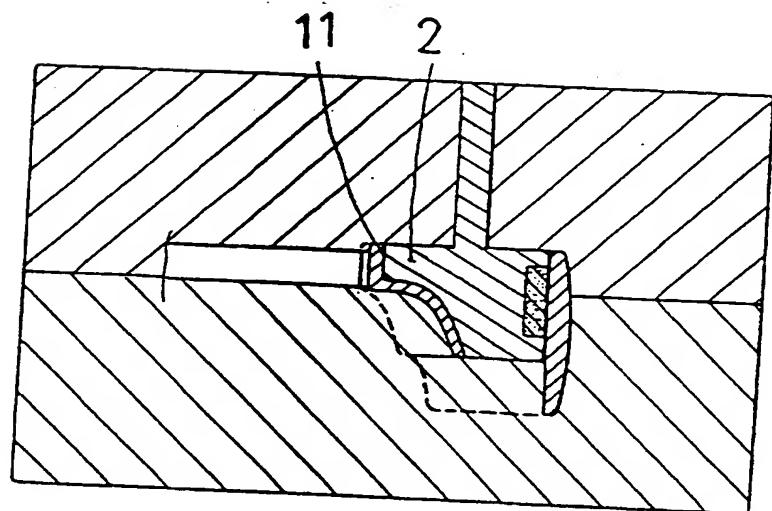


FIG. 5

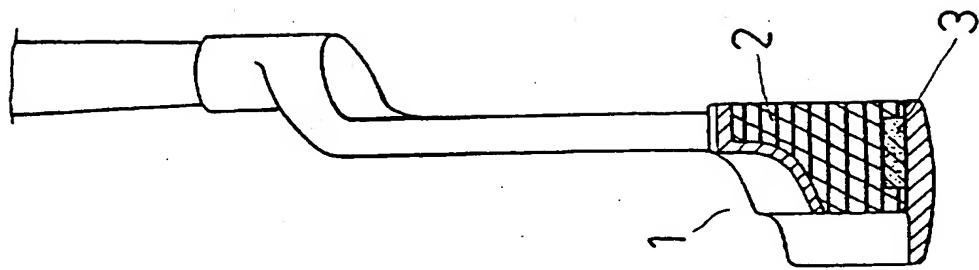


FIG. 7

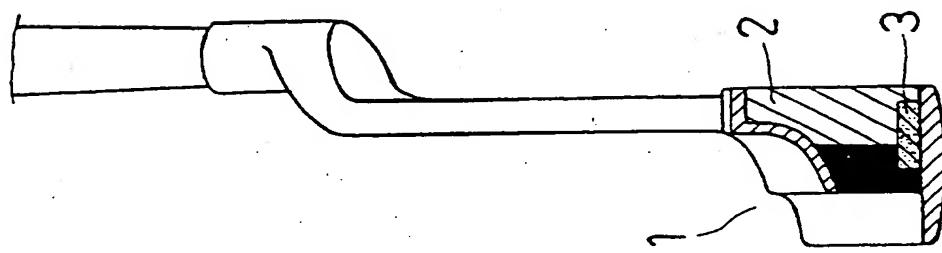


FIG. 8

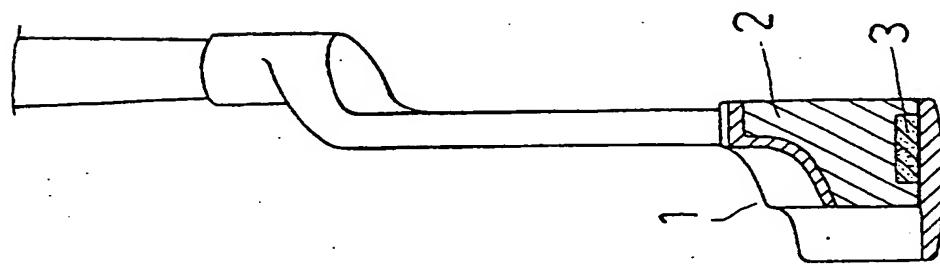


FIG. 6

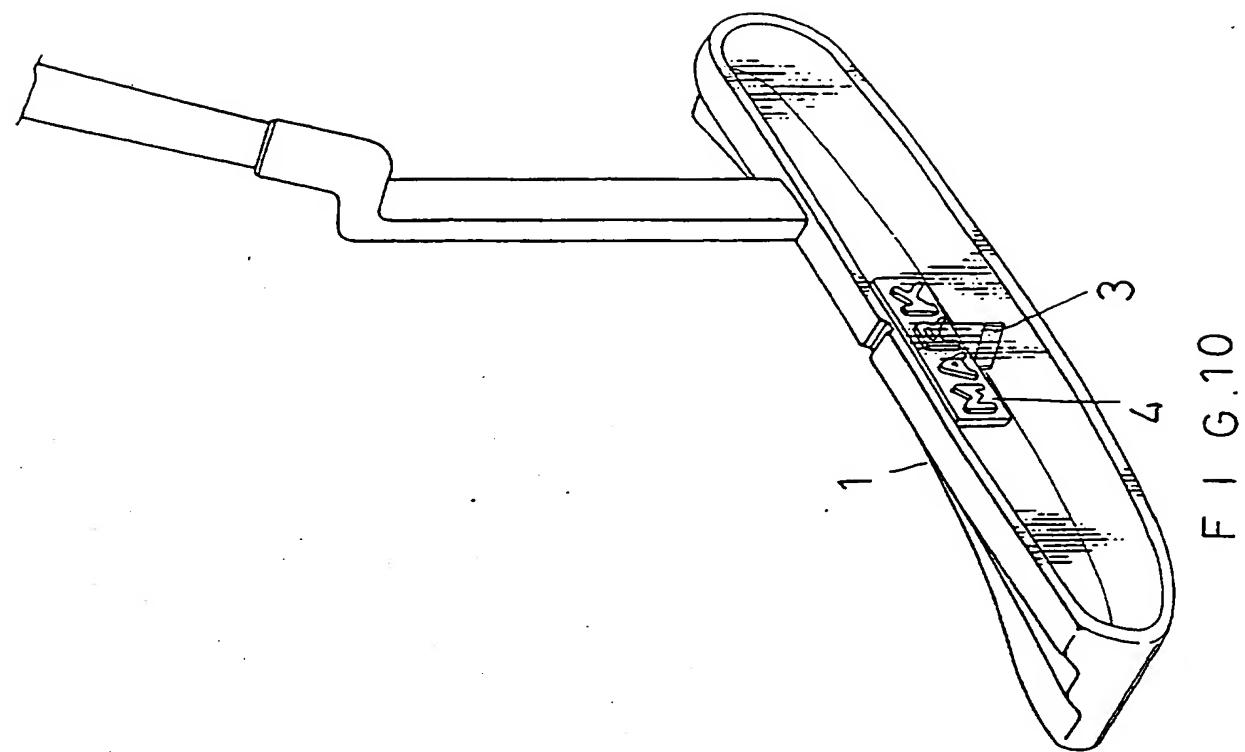


FIG. 10

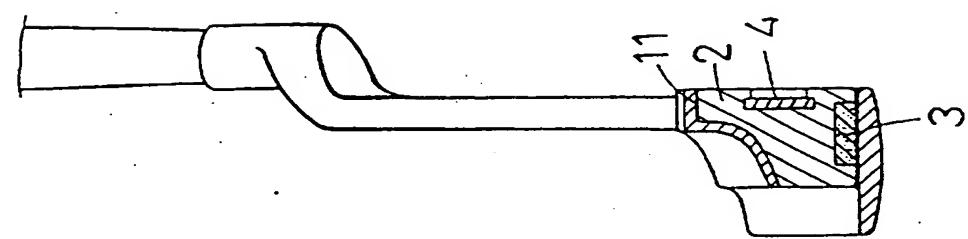


FIG. 9

## METHOD FOR MANUFACTURING GOLF CLUB PUTTER HEADS

## BACKGROUND OF THE INVENTION

This invention relates to a method for manufacturing golf club putter heads, particularly to one for making putter heads formed of a strong metal with a recess filled with a transparent non-metal material not twisting in hitting golf balls.

Conventional golf club putter heads mostly have a trademark with a name or pattern of a maker printed on a striking face for advertisements, as shown in Fig. 1.

However, conventional golf club metal putter heads have the following defects.

1. They are made by means of injecting shooting process, having a single monotonous color devoid of variety, hardly giving deep impression to obtain advertising effect as expected.

2. The name or pattern printed on the striking face may wear and disappear or peel off after a certain period of use, losing original beautiful appearance or advertising effect.

3. A user may not be able to hit a golf ball with a correct posture until he/she knows the exact center of gravity of a conventional metal putter head by repeated practise for a period.

## 25 - SUMMARY OF THE INVENTION

One purpose of the invention is to offer a method

for manufacturing golf club putter heads provided with a recess for filling a transparent material therein and forming a transparent striking face so as to produce a wide variety of golf club putter heads.

5 Another purpose of the invention is to offer a method for manufacturing golf club putter heads provided with a recess filled with different transparent material of various colors or containing differently colored lines to form various golf club putter heads.

10 Another purpose of the invention is to offer a method for manufacturing golf club putter heads provided with a recess filled with a transparent material, and further with a pattern or a trademark disposed in the surface of the transparent material (i.e. the striking 15 face), not peeling or falling off.

One more purpose of the invention is to offer a method for manufacturing golf club putter heads provided with a visible weight fixed in the recess for lowering the center of gravity and for a user to easily hit at 20 the correct point of the head.

#### BRIEF DESCRIPTION OF DRAWINGS

This invention will be better understood by referring to the accompanying drawings, wherein:

Figure 1 is a perspective view of a conventional 25 golf club putter head;

Figure 2 is a perspective view of a golf club putter head made according to a method for manufacturing golf club putter heads of the present invention;

Figure 3 is a flow chart of the method for manufacturing golf club putter heads of the present invention;

5       Figure 4 is a side view of filling material in a recess of a putter head in the method for manufacturing golf club putter heads of the present invention;

Figure 5 is another side view of filling material in a recess of a putter head in the method for manufacturing golf club putter heads of the present invention;

10      Figure 6 is a cross-sectional view of a golf club putter head made according to the method for manufacturing golf club putter heads of the present invention;

15      Figure 7 is a cross-sectional view of another golf club putter head made according to the method for manufacturing golf club putter heads of the present invention;

20      Figure 8 is a cross-sectional view of another golf club putter head made according to the method for manufacturing golf club putter heads of the present invention;

25      Figure 9 is a cross-sectional view of another golf club putter head made according to the method for manufacturing golf club putter heads of the present invention; and,

Figure 10 is a perspective view of a golf club putter head made according to the method for manufacturing golf club putter heads of the present invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

A preferred embodiment of a method for manufacturing golf club putter heads in the present invention, as shown in Figs. 2 and 3, includes four steps of processes as described below.

1. First step. Making a mold for a putter head with an inner block for forming a recess 11 in the putter head 1 after making it with metal material by pressing, molding or die casting.

10 2. Second step. Fixing a weight 3 in the recess 11 of a putter head 1 so as to make a center of gravity before the putter head 1 is assembled with a golf club.

15 3. Third step. Putting the putter head 1 in a lower mold and covering an upper mold on the lower mold, then pouring liquid transparent non-metal material 2 such as epoxy in the recess 11 of a putter head 1 in the mold, as shown in Figs. 4 and 5.

20 4. Fourth step. Removing a cooled solid putter head 1 out of the mold, and grinding the surface of the transparent non-metal material flat and smooth for forming a striking face, as shown in Figs. 2 and 6.

Further, the transparent material 2 used to fill the recess 11 may have different colored lines equidistantly spaced apart as shown in Fig. 7, or a transparent upper layer and an opaque lower layer under the transparent upper layer as shown in Fig. 8. And a trademark or a pattern may be disposed in an upper surface of the material 2 filled in the recess 11 as shown in Figs.

9 and 10.

As may be understood from the aforesaid description, this invention has the following advantages.

5        1. A wide variety of golf club putter heads may be made, as the weight is not limited because of the metal putter head provided with a large recess, improving defects of the conventional golf club putter heads mentioned above.

10      2. The metal putter head is reduced in its weight, forming it as a strong housing, keeping its shape never disfigured, with the filled transparent non-metal material in the recess protected by the metal housing, possible to offer good putting effect.

15      3. The filled material may be resin or rubber, having excellent resilience for putting action.

4. The transparency or the various colored lines of the filled material may produce beautifully visual impression and worthy feeling which the conventional golf club putter heads aforesaid do not produce.

20      5. The pattern or the trademark fitted in the filled material in the putter head may become very attractive after the surface is ground flat and smooth, naturally obtaining good advertising effect.

25      6. The weight provided in the recess may augment stability of the putter head so that users may easily correct his/her hitting posture in putting practice.

## CLAIMS

1. A method for manufacturing a golf club putter head comprising:

5       (1) a first step of making a mold for a putter head, said mold having an upper mold, a lower mold and an inner block for forming a recess in a putter head after making a putter head by means of pressing, molding or die casting;

10      (2) a second step of fixing a weight in said recess of said putter head, forming a center of gravity before a golf club is assembled with said putter head;

15      (3) a third step of putting said putter head in a lower mold and covering an upper mold on said lower mold, then pouring liquid transparent non-metal material such as epoxy into said mold to fill in said recess in said putter head; and,

20      (4) a fourth step of removing said putter head with said recess filled with transparent non-metal material from said mold and grinding the surface of said non-metal material into a flat smooth striking face, finishing manufacturing a golf club putter head.

25      2. The method for manufacturing golf club putter head as claimed in Claim 1, wherein said third step is filling said recess of said putter head with two layers which consists of an upper layer of a transparent material and a lower layer of an opaque material, or with a material provided with two different colored lines interposed.

3. The method for manufacturing golf club putter

heads as claimed in Claim 1, wherein said third step further includes a pattern or a trademark disposed in said recess during filling said recess with a transparent material.

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Application No: GB 9807458.6  
Claims searched: 1-3

Examiner: J P Leighton  
Date of search: 15 June 1998

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:  
UK Cl (Ed.P): B5A(AA2, AB10, AB13, AC)  
Int Cl (Ed.6): A63B(53/00, 53/04); B29C(45/14)  
Other: Online:WPI

**Documents considered to be relevant:**

Category	Identity of document and relevant passage		Relevant to claims
A	GB1135728A	Voit Rubber Corp.	
A	US5575472A	Odyssey Sports Inc.	
A	US5332214A	STX Inc.	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.